

CLAIMS

1. A modulator circuit (2) comprising: a negative impedance amplifier (6) operable such that a signal applied to the amplifier is reflected and amplified and switching means (14, 16) for switching the impedance of the amplifier (6) between two reflecting states, characterised in that the impedances in the two reflecting states are selected such that the phase of the reflected and amplified signal switches by substantially 180 degrees.
2. A modulator circuit according to Claim 1 in which the impedances in the two reflecting states are selected such that the reflection gain of the amplifier (6) in the two reflecting states is substantially the same such that the reflected and amplified signal is a binary phase shift keyed.
3. A modulator circuit according to Claim 1 in which the impedances in the two reflecting states are selected such that the reflection gain of the amplifier (6) in the two reflecting states is different and wherein said impedances are selected such the reflected and amplified signal is a substantially single sideband signal.
4. A modulator circuit according to Claim 1 or Claim 2 in which the negative impedance amplifier comprises a transistor (6) and biasing means (10, 12, 14) for biasing the transistor such as to act as negative impedance amplifier.

5. A modulator circuit according to Claim 4 in which the switching means (14, 16) switches the biasing of the transistor (6) to switch the transistor between the two reflecting states.
6. A modulator circuit according to any preceding claim and further comprising an antenna (4) for receiving radiation (19) and converting it to the signal applied to the amplifier (6) and for radiating (20) the reflected and amplified signal.
7. A modulator circuit according to any one of Claims 4, 5 or 6 in which the transistor (6) comprises a bipolar transistor.
8. A modulator circuit according to any one of Claims 4, 5 or 6 in which the transistor (6) comprises a field effect transistor.
9. A de-modulator circuit (21) for de-modulating a Binary Phase Shift Keyed signal incorporating a modulator circuit (2) according to any preceding claim.
10. A transponder tag incorporating a modulator circuit according to any preceding claim.

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